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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/849,833 | 05/04/2001 | Eric D. Brill | M61.12-0346 | 3936 |

7590 07/09/2004

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| EXAMINER |
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SKED, MATTHEW J

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| ART UNIT | PAPER NUMBER |
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2655

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/849,833

Applicant(s)

BRILL ET AL.

Examiner

Matthew J Sked

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05/04/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The inventor fails to point out which "natural language unit" is to be modified after comparing the scores. For the purposes of applying prior art the natural language unit to be modified will be interpreted to be the first natural language unit.

Claim 3 is objected to because it ends with 2 periods.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-12, 15, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger (U.S. Pat 6,304,841).
4. As per claims 1 and 8, Berger teaches a method of training a translation device comprising:

a first and second corpus of text (col. 13, lines 1-3);

generating two meaning sets from a first and second corpus (col. 13, lines 11-15, col. 6, lines 22-26, and tables 3a and 4a);

comparing them and generating a score (measure of merit, col. 13, lines 61-65);
and

using this score to modify the model (col. 14, lines 27-41).

By looking at table 3a it is shown that by creating an alignment a meaning set must first be found in order to find the connections between the source words and the target words.

Berger does not teach processing the second corpus on a different processing unit than the first corpus. Berger does show processing the first and second corpus using alignment identifier 18 in fig. 11, what would commonly be referred to as series processing in the art. It was well known in the art that providing separate parallel processors for processing items to be compared (as in Berger) would enable faster operation, speed of processing being a well-established motivation in computer-based devices.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Berger that uses a single processing unit to process the second corpus on a different processing unit than the first corpus because the use of two processing units in a system with comparing function would enable parallel processing instead of series processing, thereby providing enhanced processing speed and clearly improved system performance.

5. As per claims 2 and 9, Berger teaches the first corpus written in a first language and a second corpus written in a second language (col. 13, lines 1-3).
6. As per claim 3, Berger teaches aligning the second corpus with the first corpus (col. 13, lines 11-15).
7. As per claim 4, Berger teaches parsing the first corpus and interpreting the parsed corpus (col. 13, lines 11-15, col. 6, lines 22-26, and tables 3a and 4a). Again by looking at table 3a the text must have been parsed and interpreted in order to make the connections between the first and second languages.
8. As per claims 5 and 10, the "specification" is taken to mean the model that is being trained within the natural language unit.

Berger teaches changing the specification of one component of the natural language unit (parameters, col. 14, lines 27-41) and comparing the calculating a new score based on the changed model (col. 14, lines 42-46).

Berger does not teach generating a third meaning set from the first corpus and the new model.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Berger to generate a third meaning set from the first corpus and new model because it would allow the change in the corpus to be used as a means to evaluate the change in the processing unit and hence facilitate training.

9. As per claim 6, Berger teaches comparing the new scores (identify highest measure of merit, col. 14, lines 42-46) and modifying the model on this comparison (calculate new values of parameters, col. 14, lines 46-49).

10. As per claims 7 and 11, Berger teaches repeating the training process many times including making a plurality of changes to the model (iterative scaling, col. 14, lines 26-56).

11. As per claim 12, Berger teaches making a permanent change to the model from one of the plurality of changes. Specifically Berger teaches stopping the training process after certain values fall below specified thresholds (col. 14, lines 53-56). Therefore the training would stop and the last change to the model is the permanent change.

12. As per claim 15, Berger does not teach changing two natural language units.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Berger to change two natural language units because it would allow for parallel processing in the system and hence increase the processing speed.

13. As per claim 16, Berger does not teach generating action sets from the first and second corpora.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Berger to generate first action sets instead of meaning sets from the first and second corpora because it would allow the newly generated characters to be interpreted by another system.

14. As per claim 17, Berger teaches the first corpus written in a first language and a second corpus written in a second language (col. 13, lines 1-3).

15. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berger in view of Luo et al. (U.S. Pub. 9,737,259).

Berger does not teach that changing the natural language unit is changing a parser.

Luo teaches training a statistical parser with a corpus of annotated sentences (para. 13, lines 1-2).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Berger to change the parser when changing the natural language unit because training the parser would allow it to adapt more easily to newly acquired data.

Neither Berger nor Luo teach that changing the natural language unit is changing an interpreter.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Berger and Luo to change the interpreter when changing the natural language unit because it is a matter of designer's choice. An interpreter is simply another type of linguistic processing and it is common to train them for better results.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Alshawi et al. (U.S. Pat 6,195,631), Nakayama et al. (U.S. Pat 5,687,383), Ma et al. (U.S. Pub. 9,729,417), Saund et al. (U.S. Pat 5,687,364) and

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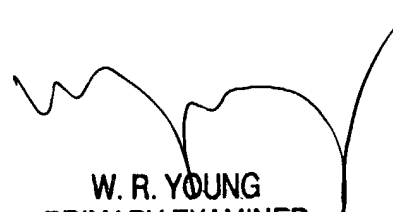
Tillmann et al. (U.S. Pat 6,182,026) are all methods for training a translation device. Kupiec ("An algorithm for finding noun phrase correspondences in bilingual corpora") and Brill ("Transformation-Based Error-Driven Learning and Natural Language Processing: A Case Study in Part-of-Speech Tagging") are both papers on training natural language units. O'Donoghue (U.S. Pat 5,893,134) teaches a method for aligning texts.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J Sked whose telephone number is (703) 305-8663. The examiner can normally be reached on Mon-Fri (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (703) 306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MS
07/01/04



W. R. YOUNG
PRIMARY EXAMINER